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NOVEMBER 1975

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Journal Jottings

Have you ever tried to plant a garden in an old unused driveway. I helped a friend dig one a few weeks ago and with every shovelful of packed soil, cinders, stones, and clay that I threw onto the growing pile I wanted to break out into "I Never Promised You A Rose Garden." When we got the garden to the size and depth we wanted, we wondered what we could possibly mix with the removed soil.

The answer was a few yards away in a compost pile, the origin of which dates as far back as the driveway. Over the years, vegetable matter, tea bags, eggshells, grass clippings, leaves, have been thrown on the pile along with soil, manure, and garden refuse. The last few years it's made an excellent spot for planting those unruly zucchinis that would otherwise try to take over the vegetable garden. The soil we extracted from that pile, which looked terrific, was mixed with some of the soil we had removed. We added a few "hand-picked" worms found in the compost and planted the rose bushes. Only time will tell how successful we were with the rosebushes, but we did start adding materials right away to the compost heap. I don't know that I can convince these friends to wander out several times a day to the heap with a one-handled soup tureen, but according to Professor Hill, human urine is an excellent addition to any compost. He discusses the whys and wherefores of composting and how-to-do-it in his two-part article on "Composting for Farm and Garden".

It's the "Farm" part of that title that I found of particular interest because I honestly admit that I didn't know that composing can be and is done on an almost limitless scale. Rudi Dallenbach, Director of the College Farm, has set aside an area for compost heaps or windrows as they are called.

As we are always on the search for article ideas, I think this is great for I know that I can now put a note in the forward file to ask Rudi some time in the future what he thinks of compost. Possibly by that time, I'll have comments from other farmers as well, and I hope that I'll be able to say that the rose garden, thanks to the compost, is a "blooming" success.

Hazel M. Clarke

Editorial

"Composting? It's O.K. for back-yard gardeners but it's sure not practical for us full-time farmers." That's typical of the type of comment one will often get when the question of composting and organic farming comes up among farmers. Comments such as these certainly indicate that commercial farmers haven't taken to organic growing as readily as their back-yard counterparts in the city. In many of these cases there may be valid reasons for not putting organic methods into actual use. But in other instances perhaps we have been too quick to condemn it as just another passing fad.

Now I'm not advocating the banning of chemicals in farming. Certainly the use of chemical fertilizers, insecticides, and herbicides has been a major factor in increasing agricultural efficiency and production. Their use has permitted North America to become self-sufficient in food production and play a major role in feeding other nations of the world less fortunate than us. Their use has also enabled the North American farmer to substantially reduce his crop losses due to insects and disease. But because these chemicals have been so successful and because we have become so dependent upon them, there has perhaps been the tendency to overuse them in some instances. This has resulted in chemical residues appearing in food products and the problems of changes in soil structure, such as erosion, compaction, and loss of nutrients, so familiar to all of us. Now what the advocates of organic farming are saying is that perhaps we ought to take a second look at some of these methods. It doesn't mean having to give up all the accustomed uses of chemical products, but perhaps rather trying to substitute some of this old, revitalized philosophy into those instances where perhaps we have been performing a chemical "overkill".

At first, the person who tries this will likely be hooted and hollered at by some of his neighbours. But this is only natural. Many new ideas go through this initial hazing period. Things like confinement animal housing, artificial insemination, soil testing, high moisture corn, and computerized record keeping all had their "doubting Thomases" during their introduction. And now they are established, conventional farming practices. Perhaps organic farming is now at the same stage as hybrid seed corn was 40 years ago. And perhaps it may very well have just as large an impact on the agricultural industry as did hybrid seed. Only time will tell, but let's not shoot down the idea before it has had its fair chance to succeed.

Gordon Bachman.

THE CHILD IN THE ENVIRONMENT

designing with people

by B. A. Francis
Department of Renewable Resources

"It's three o'clock, yipee!" Eight-year-old Tommy is on his way out. Tommy has, in fact, been out of school since two o'clock when in the middle of "In the seaport of St. Malo was a smiling morn in May when the commodore Jacques Cartier to the westward sailed away." Tommy's attention sailed away at that point. . . .

Homework checked. "Nite Miss A." Tommy checked his steps going down the long, dark stairs. Solid stone, worn down by 102 years of eight-year-old Tommies anxious to get out of school at three p.m.

Out across the schoolyard, hard underfoot, one-quarter mile of asphalt broken only by white lines, used once a year on field days.

"Bye, Willy," Tommy whispers as he passes the single tree in the black sea of the schoolyard.

If you are an adult intent on getting home, Tommy's apartment home is 15 minutes from school. For Tommy it takes three-quarters of an hour. Off we go across a busy street, " 'Smore fun this way." Ahead of us lies the main entrance to the "Park". In through the bushes we go. "This is the secret entrance," I'm informed. We spent little time in the park, twice around on a kids' merry-go-round, two swings on the big swing (standing on the seat), a walk tightrope fashion across a seesaw bar, then out through the bushes at the other side of the park. "All my friends come this way," Tommy informs me. Tommy's face lights up. "Here we are." I follow squeezing through a moveable plank in a fence . . . into Tommy's world . . . six old cars in various states of destruction . . . Billy, Joey, Stretch, and Tub are on a raft in the middle of a "lake". To my insensitive adult eyes the "lake" is a mud hole about 200 yards across of unknown depth and a constitution made up largely of oil, water, and industrial by-products. "There's the fort . . . come on." The fort is two large packing crates, some planks, three broom handles. "Who's he?" the other kids ask. "Ah, he's O.K. He's from the College, but he's my friend. He's Sufoeno*!"

*One of many code words the children used. In this case "one of us" spelt backwards.

Children vote with their feet. They ignore conventional playgrounds and in the final analysis play where they are and choose to be.

Canada is becoming an increasingly urban society. More and more rural land is being taken up by the urban process. By the end of this century Canada's population will have reached 40 million, of which 75 per cent will be living in 12 major urban or poli-urban centred regions. The pressures on the small farm owner and the rural open countryside will increase considerably. Within these next 25 years as many residential units will be constructed in Canada as have been built since the country was first settled. There is no doubt that Canada is losing much of its public urban and rural open space areas. In the areas that are still available, intelligent design in planning is important. The complexity of the scene until recently limited the scope of both rural and urban environmental research. In the past environmental quality workers sought out simple situations such as wilderness recreation where the interaction between man and environment is more amenable to analysis.

Most people in urban areas and many people in rural areas accept the desperate need for parks and open spaces in densely populated, over-constructed areas. In the cities in the past this need was answered in many instances with poor planning and, in some cases, over-planning. Innumerable dollars have been and are being spent on parks and play areas which are poorly planned and serve to increase visual and sociological blight. Sometimes these areas suffer from vandalism and related destruction, and many of them suffer from under-use.

Whether we talk about urban or rural planning, most designed environments reflect the largely untested assumption held by the professional planner about the way people behave and what is important to them. Substantial differences exist between the public and the designer's view of the same environment. This has been disregarded by the latter, on the basis that the designer knows what the public wants and what is best for the public.

The problem for both rural planning and urban design is that the designer-planner also operates under constraints. The designer is only one of a number of people who exert some influence on the final plan. Some designer-planners assume too close a relationship between site plan and social interaction. I had a personal example of this some months ago. I arrived at a large, new bus terminal. The seating in this terminal was so arranged that there was no choice but to stare at all the other people who were sitting down. All people could do to avoid uncomfortably staring at the other travellers was to stand up or seek solace behind a newspaper. I inquired about the arrangement of the seating area and was told they received many complaints. The designers, I was told, felt people wanted to meet each other.

In the past any attempt to encourage the people who would most directly be affected by a planning decision to participate in the planning process was limited to surveys whose accuracy and unbiasness was open to question and the "picture selection approach." This approach involves showing pairs or triplicates of pictures and asking which is the most positive. The idea is that the people being tested keep picking pictures that contain certain characteristics. In this type of situation the choice of

picture to be shown and their manipulation may bias the results. The Department of Renewable Resources here at Macdonald College is addressing itself to the problem of getting "user input" into the planning and design of recreation and park areas. Unless the people who will be living with and using such areas have some "input", good design is not likely to occur. The writer along with Professor E. R. Fillmore of Macdonald College and Dr. M. Sam Rabinovitch of McGill's Department of Psychology are working on a way to allow children to have an input into park and recreation area design.

The approach being taken utilizes an apparatus which externally resembles some types of planning tables now in use. This table allows the use of three-dimensional and graphic representations (including some aerial photographs) to be displayed before the children. The "representations" are of the area to be designed with the geographic, ecological, and other natural and unalterable considerations on it. A selected group of children from the locality is chosen and invited to improvise (with the use of the scaled model) the area as they would like it to be. Each individual child is encouraged to do this. When each child is finished, an overhead picture is taken and is developed into acetate overlay form. The individual designs can then be looked at in composite form. This gives us a look at the feelings and values that the children attach to different parts of the proposed area. The needs of the children can then be looked at in relation to the unalterable physical factors and functional considerations common to all park planning. Why is it felt necessary to place such importance on a child's input in park or recreational area planning? Let's look at the designed and planned environment as it affects the child.

Children in the Environment

Children, growing up in town or country, for proper social and emotional development need a comprehensible physical environment, one in which they can feel secure and develop a sense of confidence. They need to explore, manipulate, and experience diverse environmental stimuli without feeling overwhelmed. It is through this exploring, manipulation, and experiencing that children come to see the various facets of their experience as part of a whole. The rural child has a place where he can feel effective as an agent of change. In comparison to the complex technological world, the natural environment remains relatively stable and a rural child in contrast with an urban child can see immediately the transformation that he has effected. Previous research done by the writer shows that the physical environment plays an important role in supporting a child's emotional security. It is important in developing his sense of personal identity. City children brought up in neighbourhoods and areas where extensive demolition and construction are taking place have difficulty in building a stable image of their environment and of themselves. Children's continuity of experience is important. It is through this continuity of experience and the feeling of being an agent of change, of being able to affect one's environment, that the child develops a sense of industry, competence, and confidence.

Children brought up in neighbourhoods and areas where extensive change takes place have trouble building a stable image of their environment and of themselves.

Overly-wrought landscapes appear to inhibit the spontaneity of children. Most present urban development has this effect. Overtly or subliminally the child is told to keep off, do not touch, no trespassing, do not pick, climb, or disturb. Boys' clubs, schools, playgrounds, and other recreational areas are usually structured. The design of most playgrounds and playground equipment imposes a pre-determined activity. Research conducted in the United States showed that the children's free play patterns in these equipment areas are of short duration. In conventional slide-swing playgrounds there is little variation regardless of the apparatus played upon, and playgrounds generally are of little use to anyone except equipment manufacturers. One preliminary finding by the writer is that some of the newer contemporary playgrounds are more attractive to **adults.** For the child, healthy emotional and physical growth is an active process. Put simply, children experience a playground through play, through action and fantasy, whereas the adult's appreciation of the aesthetic is often a passive experience.

Over 100 years ago, the English poet, Wordsworth, said: "The child is father to the man," and after all in the final analysis, what can be more useful than gaining knowledge to help foster the optimal development of society's most important resource, its children?

Part I: The Whys and Wherefores

by Professor Stuart B. Hill
Department of Entomology

Answering the question, "how should I make compost?" is rather like answering the question, "how can I bake a cake?" It depends on what your objectives are, what materials and equipment you have to work with, and how much effort you are willing to put in.

The reasons for composting have been twofold. Most of the estimated 10 to 100 million tons of compost produced annually is made to get rid of organic wastes with their associated space requirements, odours, and contained plant or animal pathogens. The more positive objective, which is usually the one mentioned by backyard gardeners, is to build up or maintain the fertility of the soil. Actually, composting enables us to achieve both these objectives, but more than that it enables us to achieve them in a way that can be part of a permanent survival strategy for man. Let me explain. *Homo sapiens* like all other species are subject to the laws of nature whether we like it or not. If we want our species to survive, which I assume most of us do, it is vital that we become aware of these laws. Here are two of the laws, relevant to this topic, that I have become aware of:

1. SURVIVAL IS DEPENDENT UPON NEEDS AND AVAILABILITY OF WHAT IS NEEDED

It follows from this that we must sort out what our real needs are. We could say that one primary need is to be happy; to be happy we need to be healthy and to be healthy we must have an adequate supply of suitable, high quality food; to ensure this we must only employ food production strategies that utilize types and amounts of materials that we can go on using for ever, i.e., we must establish as near permanent strategies as possible.

Most plants need nutrients such as nitrogen, phosphorus, and potassium, and in nature they usually get them via the decomposition of organic materials, such as fallen leaves, which they produce themselves. The most stable communities of plants are also the most complex, that is, being made up of a large number of species. Within such a complex community many mutually beneficial relationships exist. For example, plants produce organic matter, which the decomposers utilize as their source of nutrients and in so doing they provide the inorganic and simple organic nutrients required by plants.

In contrast, in conventional agriculture, which is usually concerned with simple communities, we take non-renewable fossil fuels and mineral deposits, synthesize inorganic or simple organic plant nutrients and apply these to the soil for the plant. In doing this we are, as it were, putting the decomposers out of business and, at the same time, becoming "addicted" to certain limited resources. It seems to me that we would better ensure our survival by directing our efforts to understanding how to cooperate with the decomposers, who, after all, are the experts at supplying nutrients to plants. They have been doing it for millions of years, whereas we are mere novices as seen by the frequency with which our efforts are ineffective or even harmful, e. g., contamination of lake, river, and well water with nitrogen fertilizers, increased susceptibility of crops to disease and pest attack, contamination of vegetables with toxic levels of nitrate. Adding compost to soil represents one attempt to cooperate with the decomposers and enable them to supply nutrients to our crops. It also improves soil aeration, drainage, moisture and plant nutrient retention, soil stability, and it reduces the energy required for tillage. Compost can also lead to increased resistance in plants to pathogens and pests. What NPK fertilizer can claim to do all these things?

2. IN NATURE RELATIONSHIPS ARE CYCLICAL AND ALL CYCLES ARE INTERRELATED

I have already referred to the cyclical relationship between decomposers and plants. We should try to tune in to this relationship rather than ignore it, as we presently do, i.e., we take organic materials from rural areas in the form of food, fibre, and wood and deposit them in cities; we then take the consumption and by-product wastes resulting from their use and burn them, causing air pollution, dump them in the river, causing water pollution, or dig them into non-productive land (landfill), causing soil pollution. Rather we should be keeping these "natural" organic materials separate from the "synthetic" organic and non-organic materials (plastic, metal, glass) and recycle them back to the environment they came from. By doing this we would be forced to take a more realistic view of the economics of our present lifestyle. We would see, for example, that the cost of recycling citrus wastes back to Florida or California is much greater than recycling the waste from green peppers or red cabbage (equally good sources of vitamin C) back to our own backyards or to the local market garden; yet our present agricultural policy supports a "health strategy" that encourages the use of citrus as our source of vitamin C.

You might wonder why we cannot simply return our organic wastes to productive land without composting it. Well there are several reasons. These wastes usually contain one or more of the following things:

1. plant pathogens
2. plant parasites
3. other plant pests, e.g., nematodes and insects
4. animal pathogens
5. animal parasites
6. other pest and nuisance organisms, e.g., maggots of houseflies
7. seeds, including weed seeds
8. animal matter (attracts rats, dogs, etc.)
9. non-degradable materials, e.g., glass, metal, plastic
10. toxic chemicals, e.g., pesticides, antibiotics, heavy metals, dyes
11. already putrefying materials that are giving off bad odours.

In addition, household refuse usually has a very high carbon to nitrogen ratio (C/N=150:1 to 50:1) because of its high paper content. This would result in a decreased availability of nitrogen to the plant if applied directly to land. In contrast, sewage sludge and farm and garden wastes, such as animal manures, grass clippings and kitchen wastes, usually have a fairly low C/N ratio (50:1 to 5:1). One approach has been to mix these two different types of materials (household refuse and sewage sludge or manure) to provide an optimum starting C/N ratio for composting, e.g., 35:1 to 30:1.

During the process of composting carbon is lost as the gas carbon dioxide; nitrogen should remain the same or even increase as a result of the fixation of nitrogen from the atmosphere by certain microorganisms. The resultant compost ideally has a C/N ratio of 12:1 to 10:1.

Composting provides the best means to eliminate problems that may result from the presence of the materials listed above. If carried out properly, pathogens, parasites, other pest organisms, and seeds are killed (by heat, predation, and antibiotics), the presence of animal matter provides no problems if the area is protected from vermin, non-degradable materials can be removed, before or after composting, for recycling, toxic chemicals are broken down or tied-up during composting by the formation of complex compounds or by adsorption, and smells may be eliminated by ensuring an adequate supply of oxygen and by controlling the pH (acidity/alkalinity) of the material. Thus, the compost heap provides a means of filtering out undesirable materials and of improving the fertilizer value of organic wastes.

Composting is basically a controlled humus producing process, and it is largely the humus fraction of compost that directly or indirectly bestows all the benefits on soil mentioned earlier. While the data presently available are inadequate, I suspect that if we took a particular amount of raw organic matter (e.g., a green manure) and ploughed it into the soil we would end up with less soil humus than if we composted it and ploughed in the compost, this being because it is easier to manage a compost heap than soil for humus production. In conventional agriculture the management of soil for humus production conflicts with its management for plant production.

The following two statements are frequently made regarding the feasibility of maintaining soil fertility by composting.

1. "Surely it can't be done economically on a large scale." Well, one composter in Texas (where I understand everything is bigger and better) is supplying compost to farms totaling ¼ million acres and he sees no reason why in the future he could not meet the needs of 10 million acres and decrease their fertilizer bill at the same time.

2. "Surely there isn't enough organic matter to fertilize our soils with compost." This position is frequently held by those who measure the fertilizer value of compost in terms of its NPK. Compost, however, often has relatively little NPK and yet has an enormously beneficial effect. This is largely because of its direct and indirect effects on the rate of mineralization and immobilization of plant nutrients. The major inputs required for this process are mineral matter (e.g., the earth's crust — hardly a limiting factor) and organic matter, with its contained flora and fauna. In temperate countries there is unlikely to be a shortage of organic matter as their low average annual temperatures favour plant growth above decomposition, i.e., plant matter is produced faster than it can be broken down and as a consequence it has the potential to accumulate. It must also be remembered that some of the nitrogen in the organic wastes has come from the air by nitrogen fixation rather than from the soil so we should be able to add more nitrogen to the soil than was there in the first place; and in addition the composting operation can be managed to bring about nitrogen fixation within the heap (particularly by adding phosphorus to it as rock phosphate, bone meal, hoof and horn, fruit wastes or activated sewage sludge). In the tropics the opposite is usually the case, i.e., decomposition proceeds faster than plant growth (Mohr and Van Barren 1972); however, Sir Alberta Howard (1943), the father of composting, has shown that compost improves the "health" of the soil, plants, and animals there also.

Let us now look at the ways of composting on the farm and in the garden. Poincelot (1972), Gray et al. (1971-7972) and Golueke (1972) have provided the best short reviews of the process and these should be consulted for further details. Current articles appear in "Compost Science", "Bio-Dynamics", "Acres, U.S.A." and "Organic Gardening and Farming". Canadian experiences are recorded by Bell and Pos (1973), Grussendorf (1970, 1971) and MacLean and Hore (1974). In addition, an annotated bibliography of composting references has been prepared on campus and is available for the cost of copying it (Merrill and Hill 1975).

Part II: How To Do It

For Part II of "Composting for Farm and Garden" Professor Hill was interviewed by Hazel M. Clarke of the Journal. Questions will appear in italics. Both Professor Hill and the Journal would like to thank Graham Lowe of the Soils and Land Resources section of the Department of Renewable Resources and Spencer Cheshire of Smithville, Ontario, for their valuable comments on this article.

Would you summarize Part I by saying what you consider the objectives of a fertilization program should be?

Professor Hill: Ideally the program should satisfy the following criteria:

For socio-economic survival (applies more to farm than garden):

1. be economically feasible;
2. be socially acceptable, e.g., to farmhands and neighbours;

For biological survival (applies to all):

3. require minimal energy and other non-renewable resource inputs, e.g., minimal use of machinery and manufactured products;
4. should cooperate with ecological cycles and processes, e.g., be based on the return of organic wastes to soil and utilize soil decomposers for their breakdown;
5. should not overload any systems or lead to pollution of water, air, soil, or food products;
6. the plant nutrients should be released to the plants as they require them;
7. should lead to the build-up and maintenance of soil structure.

What does a farmer need to get started?

Professor Hill: Basically three things:

1. a good supply of organic matter; ideally a mixture of animal and vegetable wastes;
2. a power take-off tractor with a front-end loader and a power take-off manure spreader; a gardener just needs a fork, spade, and wheelbarrow or cart. Shredders are useful but not essential. Push lawnmovers and corn cutters can be modified to make hand-operated shredders;
3. but most important of all an experimental, adaptable approach to farming or gardening.

What should he do first?

Professor Hill: I would suggest that he set aside a representative part of his land, perhaps his smallest field, to test compost on. It is very important that the test runs for four or five years as the benefits of compost are cumulative and may not be fully evident in the first year. Ideally he should aim to add 10 to 20 tons/acre (app. 1 lb/sq. ft.) in the first year. This may be reduced to as little as one ton per acre as the soil improves. Some farmers in Texas who have done this maintain that they have reduced their fertilizer costs from between $45 and $75 per acre using NPK to $25 per acre using compost. Most farmers using compost disc it into the top six inches of soil in the spring or fall.

Most farmers make compost in windrows, six feet wide at the base with steeply sloping sides, three to five feet high with a central depression along the top to catch moisture, and as long as you like. The windrows should be located on well-drained soil near the sources of organic wastes.

Should gardeners build the same type of heap?

Professor Hill: Gardeners usually do not compost in windrows as they rarely have enough materials to make a large enough heap. If the heap is not large enough, it will not heat up and weed seeds, disease organisms, and pests may not be killed. Also a small, exposed heap will tend to dry out and will be prone to disturbance by animals. These problems may be overcome by constructing a wooden composting box. Wire mesh enclosures are only suitable if they are lined with cardboard; otherwise they will not hold the heat. The most practical design consists of two 3 or 4 ft. square bottomless compartments, arranged side by side, with the fronts open so that boards can be slid in as the organic waste accumulates (a 4 ft. x 4 ft. x 4 ft. box will hold a ton of compost, enough for over 500 sq. yds. of garden if put on to a depth of 2 to 3 inches). If creosoted and painted with black bituminous paint, these "New Zealand" composting boxes will last 20 or more years. They should be located:

1. where it will enhance rather than mar the appearance of the garden and where it will not annoy the neighbours;
2. where it will be most convenient to take organic wastes to (including loads of animal manure and winter kitchen waste) and collect compost from;
3. in a well-drained site, sheltered from high winds and hot sun, ideally sheltered by an elderberry bush, as most species of earthworm favour their leaves and will consequently be plentiful in the surrounding soil!

Composts should usually not be built on concrete or in pits as the former will impede drainage and aeration and the latter will tend to fill up with water in the winter and will also suffer from a shortage of air.

The organic waste is collected initially in the first compartment of the composting box until there is sufficient material to build the "compost heap proper" in the second compartment. Most "compost heaps proper" are built in autumn when there is a flood of materials in the form of leaves and end-of-season refuse. If all goes well, the resultant compost will be ready for distribution in spring.

What materials may be put into a compost heap?

Professor Hill: While organic matter is the main ingredient, many other things may be added — this is where the value of an "experimental" mind comes in. Here is a comprehensive list:

Organic matter: animal wastes, especially manures (high N); plant wastes, e.g., green manures, straw, hay, grass clippings, weeds, leaves, crop wastes, food processing and kitchen wastes, seaweed (low to high N): wood and paper wastes (low N); urban wastes, e.g., sewage (moderately high N), garbage (low N); partially decomposed materials, e.g., peat moss, leaf mould (low N) rotted manures (high N).

Organisms: rich fertile soil (important primary source of decomposers, nitrogen fixers and trace elements); commercially available cultures of decomposers and nitrogen fixers, e.g., the B-D Starter (available from The Pfeiffer Foundation, Inc., Threefold Farm, Spring Valley, New York, 10977); manure worms, e.g., the worms usually found in piles of rotting manure.

Materials to supplement plant nutrients (roughly in decreasing order as percentage by weight)

Nitrogen:

feathers
blood meal
wool and felt wastes
fish and marine products
tankage
gluten meal
tea grounds
peanut shells
tobacco stems
raw bone meal
soybean hay
animal wastes
urine

Potassium:

wood and other plant ash
green sand
tobacco stems
granite dust
water lily stems
millet straw
urine

Phosphorus:

rock phosphate
bone meal
fish & marine products
tankage
activated sewage sludge
blood meal
wool wastes
plant ash

Trace Minerals:

certain rock dusts
glacial deposits
marine products
sewage and urban wastes
certain "accumulator" plants
(see Rateaver & Rateaver, 1973)

Materials to reduce acidity:

dolomitic limestone (slower acting than lime so less chance of nitrogen loss as ammonia), wood ash

Materials to stimulate decomposers:

Nitrogen sources

see above

Fermented plant materials: (added by bio-dynamic composters — for details write the Secretary of the Bio-Dynamic Farming & Gardening Association in Canada, John Rohlman, R.R. 1, Terra Cotta, Ontario L0P 1N0; see also Bruce 1967 for an alternative approach). Oak bark, valerian, stinging nettle, and the flowers of dandelion, chamomile and yarrow.

Seaweed extracts: contain cytokinin plant hormones.

Other important things that must be regulated in the heap are moisture, air, and warmth. Let me emphasise that I have included this long list for those who want to experiment; the only vital components are organic matter and decomposers. The other materials speed up the process or vary the properties of the end product.

How is the heap constructed?

Professor Hill: If using a compost box, it is best to raise the heap slightly off the ground so that air may enter from below. This may be accomplished by placing several rows of bricks, one inch apart, directly on the soil or by laying a few branches on the ground. The heap is then constructed by starting with a layer of coarse material, which will prevent the finer organic matter from falling in between the bricks. Then add a 5- to 8-inch layer of the organic waste that has been collected in the first box. In order for it to decompose, it will usually need inoculating with suitable

microbes and they will require a supply of available nitrogen. The microbes can be introduced by sprinkling some finished compost or fertile soil over the layer; and the nitrogen by adding a ½ to 2-inch layer of nitrogen-rich material (see the list above). Extra phosphorous and potassium can be provided, if required, by sprinkling a handful of any of the materials listed above. To prevent the heap from becoming too acid, a handful of crushed dolomitic limestone can be added to each layer although this is not usually necessary and can lead to a loss of nitrogen. Watering the layers with human or animal urine diluted two or three times with water will not only moisten the material, but will supply it with nitrogen and potassium. This is particularly useful if you are trying to compost leaves as they tend to be very low in nitrogen. Further layers are built up in this way until the compartment is filled. It should then be lightly patted down to bring the various components into closer contact and to prevent the surface from blowing away.

Ventilation of the heap will be enhanced by piercing it in several places with a three-inch diameter stake.

I was rather surprised that you mentioned using human urine; isn't there a danger of diseases being spread by doing this?

Professor Hill: No. Urine comes from the kidney, the body's filtration system; so unless one is suffering from a bladder infection it should be fairly sterile. It is funny how many people are anxious to contribute towards recycling by collecting glass or newspaper, which is of questionable value as the process utilizes considerable amounts of energy, but when it comes to "real" recycling, such as we are talking about now, they shy away. Utilizing our urine as fertilizer not only aids composting but saves the vast amounts of water used to flush this valuable fertilizer into our waterways where it can contribute to pollution by helping speed up eutrophication.

How should the farmer set about constructing his windrows? Isn't it going to require a lot of extra labour?

Professor Hill: Like all new tasks composting may require some extra labour the first time around but it soon becomes part of the annual routine. Actually the heaviest part of the work is the initial handling of the raw manure, and that is something that has to be done anyway. First the manure spreader is loaded with organic wastes by means of the front-end loader. Periodically a shovelful of fertile soil or mature compost (up to 10 per cent of the total) should be thrown over the compost material to inoculate it with decomposers. Other supplements may be added at this stage, if desired. If the material is dry it should be sprayed with water or urine so that it has the feeling of a squeezed out sponge. The spreader is then drawn to the site chosen for the heap and the machine put into operation. A hood should be built over the beaters so that the compost material does not spread but comes down on the ground neatly. A removable hood can be made from lumber or from a three-foot iron culvert split in half lengthwise. The first section of the heap is built up to at least three feet high; the spreader is then moved forwards about two feet and a second section built up. Each new load must be backed up against the end of the windrow and the process continued until the pile is completed. In throwing out the material it is shredded and aerated. If you wish to inoculate the material with a commercial culture of decomposers you can do it by spraying into the material as it comes off the beaters, by means of a knapsack sprayer. The compost material retains its loose structure only if it contains a good proportion of straw or other coarse material. If it becomes compacted, anaerobic conditions will develop and it will start to smell. It is a good idea to cover the entire heap with a two-inch skin of top-soil although this is not essential. As with the garden compost ventilation should be provided by piercing the heap at three feet intervals with a three inch diameter stake. If it is very rainy or if winter is approaching it is best to cover the heap and insulate it. This can be done with a sheet of 10 feet wide black polythene (six microns thick). A thick layer of straw, hay, or leaves is spread over this, then another sheet of polythene, and another layer of straw. This keeps the heap warm so that it will be ready for distribution in the spring. Alternatively, if it is not wet or not getting cold the heap should be allowed to heat up (to 55°C) and then cool down. This usually takes three to four weeks; then the heap is turned by means of a front-end loader. Marvin Urbancyk, of Texas, has designed a machine that sells for a little over $30,000 that will turn 500 to 600 tons per hour (see Acres, U.S.A. 4(5): 16-17, April 1975), but I guess it will be some time before our readers get that involved with compost. Generally the more often the heap is turned the faster it breaks down.

You mentioned earlier about adding manure worms. When would you do this?

Professor Hill: Some farmers keep a culture of manure worms and add a handful every 10 yards or so to the edge of the heap after the last turn.

What if our readers do what you say and the heap does not

heat up or come spring and it still has not composted? What could have gone wrong?

Professor Hill: There are several factors that can affect the success of the process and the rate of decomposition, and these should be considered if things go wrong. However, if the heap doesn't heat up or if it takes a little longer than is expected only time is lost; the compost will still be a valuable soil amendment.

These factors are:

1. **Size of fragments or organic waste.** The smaller they are the faster the decomposition. For windrows 1:5- to 3-inch fragments are optimal. Actually, shredding and attention to the various other limiting factors can result in compost being formed in as little as 14 days.

2. **Degree of mixing and variety of components in the heap.** The greater the variety and the more thoroughly they are mixed, the faster the decomposition. This can be accomplished either when constructing the heap or by turning it periodically. With a compost box this can be done by transferring the heap from one compartment to the next.

3. **Availability of air, moisture, and nutrients for the decomposers.** If the heap is too loose the circulating air will cool it; and if it is too compact the lack of air will cause it to become anaerobic and it will start to smell. The heap should be kept moist at all times, but not soggy. A moisture content of 50 to 60 per cent is optimal, i.e., if you squeeze the compost in your hand, it should feel damp, but water should not drip out of it. It is best to protect the heap from heavy rain by covering it in some way. Generally if the heap does not heat up and moisture and air are not a problem, then it is because of a lack of nitrogen and some must be added in one of the forms listed earlier. It should be remembered that certain materials take longer to compost than others. The brown leaves collected in autumn usually take much longer than grass clippings, green garden residues and kitchen wastes. Consequently, if speed is important, leaves should be broken up as much as possible and mixed with fast decomposing wastes. Alternatively they could be kept separate and composted in a two-year heap.

4. **Temperature of the heap.** Often small heaps do not heat up because they lose heat faster than it is being generated. It is best to insulate small heaps and heaps that will be composting through the winter. On the other hand it is wise to prevent the heap from going over 55°C as above this it tends to become alkaline and nitrogen may be lost as ammonia. Overheating can be prevented by adding soil or material with a high C:N ratio such as leaves up to 10 per cent by volume. Temperature is so important that it is used to refer to the various stages in composting, i.e., mesophilic, thermophilic, cooling down, and maturing. Different decomposer microorganisms are active at each of these stages so there is a succession of microbial activity, each microbe being limited by the temperature and the food or compost material available.

How do you know when the compost is ready for distribution?

Professor Hill: The compost may be regarded as finished when it is fine and crumbly to touch and dark in colour. This usually takes two to eight months. It can be added directly to the soil or, if it is to be used as a potting mixture or for application to lawns, it is sieved first.

Perhaps you would wind up by summarizing the benefits of compost.

Professor Hill: Let me quote from a flier describing a commercially available compost. When used "you secure vigorous, healthy crops of high yield. The soil warms faster, enables you to work the ground and makes earlier planting possible . . . quicker emergence, maturity, and harvest. The soil becomes friable taking water well, and holding it better, thus reducing irrigation requirements by as much as one third. Weeds become easier to control and diseases and insects, nature's eliminators of the unfit, become less of a problem. Fewer trips over the field are required to prepare for planting"; or as Tusser put it in 1557, "One aker well compost is worth akers three . . ." All this plus the knowledge that by going the compost route you will not be unnecessarily using up our diminishing energy reserves, not adding to environmental pollution, and you will be cooperating with the ecological cycles, providing your plants with nutrients as they need them, and building up your soil. Composting provides a way to make peace with your land.

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(Continued on page 20.)

The Family Farm

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SWINE RAISING IN QUEBEC

By J. B. Roy
Information Division

Conditions resulting in the high prices for pork which kept hog production in the news in the summer of 1975 were the very opposite of those that had drawn attention to it a year earlier. This rapid change is an excellent example of the price fluctuations in that cycle-ridden agricultural industry. It may therefore be of some interest to trace the development of swine raising in Quebec. The main features of this development are as follows.

Historical Background

Christopher Columbus is credited with introducing pigs into America (into Hispaniola, now Haiti, to be exact) in 1493. This first importation was apparently followed by one to Sable Island by the Baron de Léry et de St-Just in 1518. On August 23, 1541 a number of breeding animals including 10 pigs were landed at Quebec, according to a history of Jacques Cartier written by Charles de la Bucière. Samuel de Champlain also brought pigs to Quebec in 1608.

The development of the swine industry here is due to the pig's capacity to transform its food into edible substance and to the usefulness of its flesh in human nutrition. Pigs feed on an extremely wide range of animal and plant materials. The ease with which they can be kept explains why the colonists had them.

The type of pig now popular differs considerably from that of bygone days. Formerly the pig was a massive, dumpy animal yielding fatty meat; today it has a lengthy appearance and the meat is lean. This trend culminated in the raising of the bacon-type hog which originated in England about 1870. To satisfy its consumers' requirements that country advocated the production of streaky meat and gradually imposed the type on its suppliers, including Canada.

Lean or streaky bacon began to be produced in Canada about 1886 and was gradually substituted for fatty bacon as the higher prices it fetched induced breeders to alter their choice of breeding stock and their rearing methods. Ontario was the first province to grasp the advantages of producing bacon for the English market; Quebec did not make the change to this trade until after the war of 1914-18, although the Quebec Department of Agriculture had founded the first organization to promote the bacon and curing hog 20 years earlier. In 1895 the association for the registration of purebred swine was created and, in 1917, the agricultural department initiated its livestock productions Division including a swine section.

The grading of live pigs was introduced in 1922 by the Department of Agriculture of Canada. This was the starting point for swine improvement in this country. In 1940 carcass grading on the rail was made compulsory. From 1934 to 1940 producers could choose between grading "on the hoof" or on the rail. The advanced registry system for swine was introduced by that Department in 1929. For a long time, hog proudction was one of the most profitable branches of farming in Quebec and was considered indispensable for the utilization of skim milk. Hogs were counted on as a "mortgage lifter". This was the period when hog production was tied to milk production so that almost every farm had some pigs. However, the present distribution of Quebec's swine population shows that this situation has now changed.

Numbers of Swine in Quebec

The results of an estimate made by the Quebec Bureau of Statistics in collaboration with Statistics Canada put the number of pigs on Quebec farms on January, 1, 1975 at 1,215,000, a decline of 1.6 per cent from the 1,235,000 on January 1, 1974. At the start of 1975, the number of market hogs of all ages was estimated at 1,065,000 and the number of breeding swine at 150,000. The number of sows due to farrow in the first half of 1975 (January 1 to July 1) was reckoned at 120,000 or 9.1 per cent fewer than for the corresponding period in 1974.

At the beginning of 1975, the distribution of Quebec's total swine population by agricultural region was as follows:

Lower St. Lawrence and Gaspé	57,000
Quebec	234,000
Beauce	240,000
Nicolet	105,000
Eastern Townships	124,000
Richelieu	165,000
Southwest of Montreal	23,300
Ottawa Valley	15,000
Northwestern Quebec	6,700
St. Maurice Valley	57,000
North of Montreal	170,000
Saguenay - Lake St. John	18,000
TOTAL	1,215,000

In 1971 there were 17,400 census farms in Quebec reporting pigs. Of these, 5,400 had fewer than eight. The corresponding statistics for 1966 showed 30,700 farms having pigs, including 11,500 with fewer than eight. During that five-year period, only the number of farms having 123 or more pigs increased, namely from 2,080 to 2,700.

One is apt to judge the importance of a branch of livestock production by the number of farmers engaged in it. If hog production in Quebec were to be measured by this yardstick, the decline in the number of commercial hog raisers (to below 10,000 now) would be cause for alarm. Of this number, 570 are weaners with a total housing capacity for 36,300 sows, and 1,350 are commercial market hog finishing enterprises.

During the past five years, Quebec's swine population has varied between 1,181,000 and 1,215,000. On July 1, 1975 it amounted to about 20 per cent of the total number of pigs on Canadian farms, namely 5,300,000 (a total which was down 18 per cent from that of a year earlier and was the lowest since 1965).

Localization of Pig Raising

The foregoing table showing the distribution of the swine population by region reveals that pig raising is not uniformly practised in Quebec. Two thirds of the swine are concentrated in only four regions — Beauce, Quebec, North of Montreal and Richelieu, in order of importance. As regards the counties, the chief ones are Dorchester, Lotbinière, and Bagot followed by Bellechasse, Beauce, and Shefford. On January 1, 1975, the swine populations of these six counties were as follows:

Dorchester	143,000
Lotbinière	81,500
Bagot	66,600
Bellechasse	63,100
Beauce	55,400
Shefford	50,000

Since hog production is based on feeding concentrates (in this case corn and barley), we should expect to find it mainly in counties which are big growers of cereals, but this is not always the case. To some extent, the present geographical distribution of Quebec's pig raising enterprises is partly explained by the feed grain transport assistance policy. In theory, one would look for concentrations of swine enterprises in very good corn-growing counties and for dairy farms in areas with good conditions for forage crops and pasture.

The agricultural regions with the most commercial organizations and hog finishing enterprises are Quebec and Beauce with 27 per cent and 18 per cent of the total. In each of these two regions, the 1971 census showed over 800 farms reporting more than 78 pigs and nearly 150 (47 in Dorchester county alone and 36 in Bagot county) reporting more than 528.

Breeds

At one time the most popular breeds of swine in Quebec were Yorkshires, Berkshires, and Tamworths. Gradually, the Yorkshires put the others in the shade and, from 1940 to 1950, were distinctly predominant — in fact to such an extent that during that decade nearly all of our swine industry was based on the breed. Yorkshires are still the most widespread breed but pig raisers are also interested in Landrace, Lacombes, Durocs, and Hampshires.

The Yorkshire originated in England, in the county of that name, and was imported at the very start of the swine industry in Canada. It is a prolific breed and the carcass quality and growth rate are generally good. Yorkshires are economical feed converters. The Landrace originated in central Europe and was imported into the United States about 1943 and into Canada in 1950 where it spread quickly. It is an excellent breed for use in crossing. The Lacombe is the first swine breed of Canadian origin. Distributed to farmers in 1958, it gives good results in crosses with Yorkshires. Durocs are reddish coloured pigs recognized as a breed in 1885. Their marked possibilities of adaptability have contributed to their spread. Hampshires are black, medium-sized pigs which have been bred mainly with a view to butcher quality.

Crosses

Commercial hog production today is based on crosses between different breeds, and breeders of purebreds have to bear this use in mind when seeking to improve their breeds. In a well-planned swine breeding system, the producers of market hogs obtain their hybrid sows from "hybridizers" who have produced them by crossing improved purebreds. The hybridizers get their purebred pigs from "multipliers" who in turn use breeding stock of the breeds

selected and bred by foundation breeders.

Cross-mating to produce market hogs has several merits. Advantage is thereby taken of the good qualities of different breeds and also of the hybrid vigour. These give economically desirable results such as increased piglet vitality and growth capacity.

Cycles in the Pig Industry

Hog production is subject to fluctuations caused by constant factors producing a recurrent cycle with a period of about four years. This cycle effect is due to two main factors—changing grain prices and the differential between hog, beef, and poultry prices.

Hog prices in 1973 were double those of 1971. They sagged in 1974 and then reached a peak of $80 a hundredweight in the summer of 1975. These price fluctuations are characteristic of the hog market.

Hogs are a short-term production compared with beef, for example. Many farmers go into hogs when feed grains are cheap and get out again when the price of corn and barley rises. Quebec's hog production would probably be more stable if it were integrated with grain growing on our farms, but as long as the province's present dependence on feed grains from elsewhere persists, the industry will probably continue to be cyclic because it is not easy to predict the price of imported cereals very far in advance.

As conceived by its promoters, the aim of the joint hog-marketing plan which was unsuccessfully submitted to the producers for approval in the fall of 1973 (but not therefore abandoned) was to bring all hog raisers in Quebec into a single provincial — and, should the occasion arise, national — organization. This too would have been a stabilizing factor. Thanks to teleprinter sales, all hog producers would have been able to sell on a single market and receive the same price. Thus, differences in the prices received by Quebec and Ontario hog raisers for the same product would have been eliminated.

Vertical Integration

In 1966 market hog production in Quebec was vertically integrated in one way or another to the extent of over 70 per cent. Although that left 30 per cent of Quebec's hogs still being raised by independent producers, this proportion has doubtless decreased since. Integration through financing was the most important type, as it covered more than 37 per cent of our production. The integration of swine breeding enterprises had not reached a very advanced stage as compared with that affecting market hogs. In 1966 nearly two thirds of breeding enterprises were financed by the breeders themselves, while 27.7 per cent were operating under financing agreements. Integration has probably made further inroads into this section also in the meantime.

Integration has been favoured by three factors — the feed manufacturers' need to ensure a market for their concentrates and meal, the packing houses' need for animals, and the growth of the hog industry and lack of capital on the part of the producers. Contrary to what one would be inclined to think, integration has not been a very dynamic element in the development of hog production; rather, it has had a steadying effect and has aided specialization. It has made an important source of funds available to Quebec pig raisers and, up to a certain point, has improved their lot.

Returns

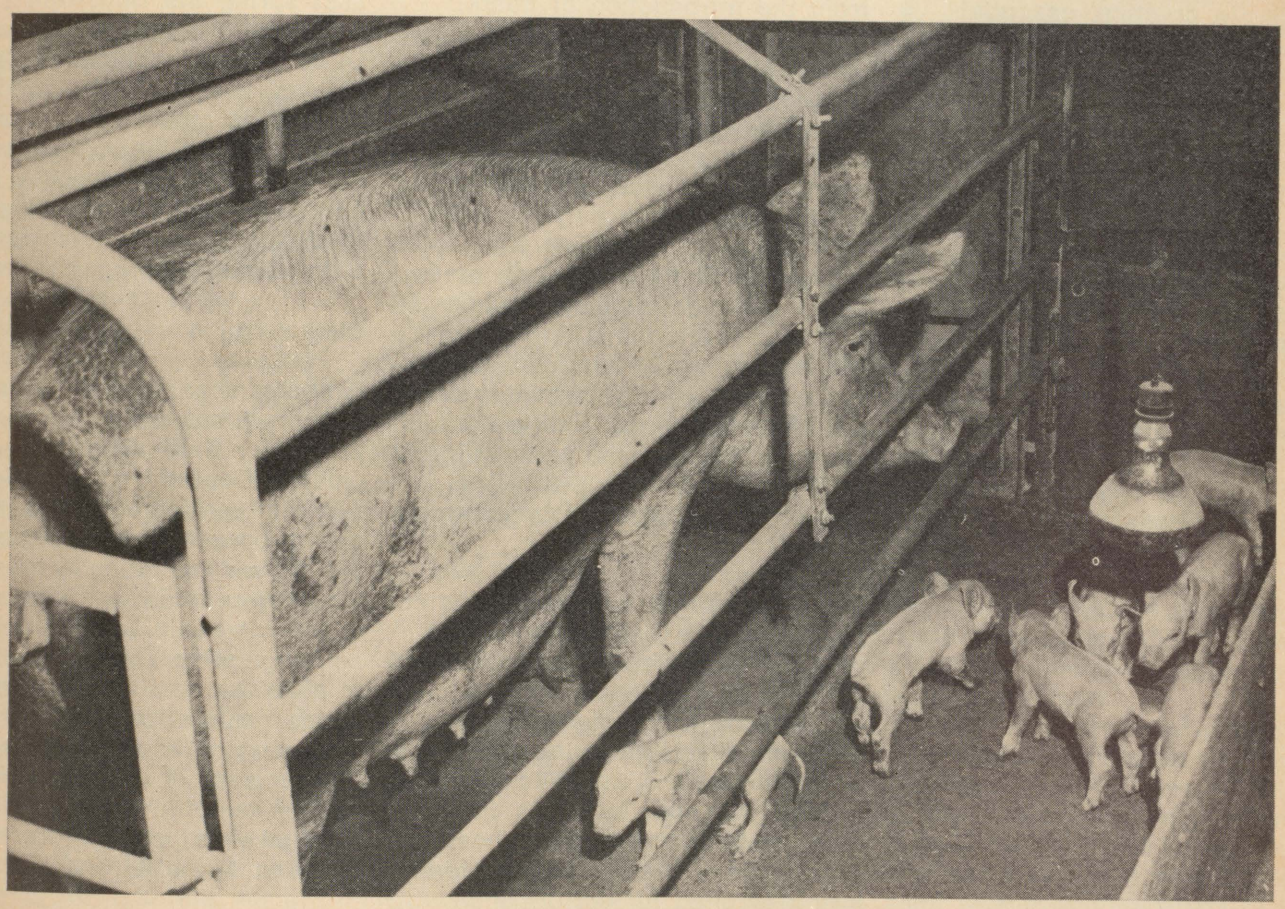
Quebec receives about 20 per cent of Canadian returns from pork. The number of hogs slaughtered in the province rose from 1,745,000 in 1966 to 2,040,900 in 1973. Cash receipts from hog sales were $156,000,000 in 1973 but only $78,500,000 in 1971 (a year of depressed hog prices) — another example of the price fluctuations in the hog market.

In 1973 hog production ranked second after dairy production and accounted for 16.8 per cent of Quebec's farm income compared with 32.4 per cent for the latter.

During recent years, Alberta has displaced Quebec from second place in hog production. Ontario still ranks first.

Consumption

Quebec's degree of self-sufficiency in hogs has declined during late years because consumption has increased faster than production. In 1965 Quebec satisfied 97.6 per cent of its own needs for pork, but the percentage of self-supply



had sunk to 73.1 per cent by 1972, when consumption totalled 384 million pounds and production only 280 million.
From 1965 to 1972 pork consumption in Quebec rose from 53 to 63.5 pounds per capita and, according to some estimates, it will be 71 by 1977. This would mean a total requirement of 457 million pounds. If Quebec's degree of self-supply is to be maintained at the existing level of 73.1 per cent, the present production will have to be increased by 50 million pounds.

The current trend is towards bigger herds rather than more pig-raising enterprises. This tendency seems to be irreversible. The above-mentioned necessary increase of 50 million pounds could be produced by 250 commercial piggeries each with a herd of 1,200. This increased production would allow the abattoirs to raise their weekly rate from 40,000 to 46,000 head, thereby increasing the profitability of their operations.

Quebec's pig raisers thus have a domestic market to satisfy, but the extent to which they will do so will depend on the means which they provide themselves with to ensure profitable production.

Promotion of Swine Production

The Quebec Department of Agriculture's program to promote swine production is designed to obtain genetically better pigs from the standpoint of feed conversions, vigour, and viability, by the threeway cross method.

It is also aimed at eliminating hereditary diseases and generally producing pigs with the best possible assurance of the health

which is, in practice, essential to optimum use of the genetic merits of our breeding stock.

The methods used to attain these aims are as follows: a) classification of pig raisers into three separate categories, namely breeders of foundation stock, crossbreeders (hybridizers) and three-way crossers (producers of weaners and operators of conventional breeding and finishing herds) and, particularly b) special emphasis on hybrid vigour and on obtaining crossbreeds produced and selected by scientifically based procedures, and c) health promotion through official surveillance of the herds. These methods are applied through a breeding program and a health program.

The Department's breeding program provides a breeding stock selection service for rearers of purebred swine and crossbreeders which is based on recognized scientific methods and is in conformity with the Canadian R.O.P. policy for swine. All pig raisers who meet the requirements of the breeding program are eligible for the benefits of the health program, that is to say technical help, aid for health control, and aid for diagnosis and research.

Artificial Insemination

Artificial insemination is now one of the surest ways to improve the efficiency and profitability of a livestock enterprise because it makes it possible to avoid infections which can often result from the introduction of boars. It must nevertheless be used very discerningly.

For these reasons, the Quebec Department of Agriculture has set up the Quebec Swine A.I. Centre whose sole purpose is to help pig raisers seeking to improve their herds through the use of superior boars at small cost.

The use of highly qualified boars is clearly a very important trump card for pig raisers. This is the "raison d'être" of the La Pocatière Centre, which now supplies semen from a score of breeding boars.

Since swine A.I. is still in its initial stage in Quebec and frozen semen cannot yet be used, the services of the Centre's boars are at present only available to commercial raisers in the area between Quebec City and Rivière du Loup, including the counties of Beauce and Dorchester. In addition, all breeders of purebred swine enrolled for performance testing qualify for artificial insemination.

To obtain semen, those eligible for the benefits of the A.I. program must apply directly to the Centre, which will immediately send it to them either directly or in a combined shipment.

However, swine raisers have to do their own inseminating. Special free courses are provided for them at which all the factors involved are explained so that they can tell for themselves the right time to inseminate.

Last spring the Department published the first edition of the La Pocatière insemination Centre's catalogue which is designed to provide as much information as possible about the boars at service. Some idea of a prospective sire's hereditary potential can thus be formed and an effective and adequate breeding program planned.

Marketing

It seems that Quebec hog producers do not always receive fair prices for their animals. The Quebec Department of Agriculture's integrated development plan proposes that they can improve their marketing by organizing themselves under a joint plan, introducing sale by teleprinter, and regulating shipments of hogs to abattoirs, and that by eliminating contract arrangements between producers and abattoirs (50 per cent of the production) sale by teleprinter should also eliminate the price differential between Montreal and Toronto.

This Month with the QWI

News fram Bonaventure

Grand Casapedia (Bonaventure Co.) enjoyed a very interesting meeting this summer when they entertained three ladies from Wales, including a branch President, Mrs. Neva Wright. The ladies spoke on WI activities in Wales and England and answered many questions. A lamp was presented to the branch by Mrs. James Fallow in memory of her mother. Their hall has been redecorated and painted, new wiring installed, and a new electric stove purchased.

Port Daniel heard Mrs. Lorne Hayes speak on Bill 22.

Marcil branch was hostess to the County semi-annual convention in September. All branches were represented at the convention, and the members agreed to help sponsor a comparative shopping program over a local radio station.

After lunch was served, a very interesting and informative talk was given by Mr. and Mrs. Aubut on rock gardening and drying and colouring flowers. Mrs. Cameron Dow, O.B.E. reminded the members how she and two other ladies had organized the first School Garden Fair in 1946 and compared the gardens in that year to those at the present time.

Tulip bulbs have been purchased by the members of **Black Cape** WI for planting this fall. They made and filled handi bags for Can-Save. The branch sponsors a Foster Child in Bolivia, and they always enjoy hearing her news via her letters. They added to their funds by members contributing one cent for each year they had been a member of QWI.

Mrs. Cameron Dow, O.B.E.

Mrs. Cameron Dow is still an active member of the WI. She recently attended the **Bonaventure County** semi-annual convention. She is always interested in other branches of the WI.

Mrs. Dow was born Sara Etta Hall at Sackville, N.B. on February 28, 1886. Her married life was spent at Port Daniel and it was here she became interested in Institute work. Bonaventure County was organized in 1923 and Mrs. Dow was the first President. She served in this office till 1926 and then again in 1935 — 1939.

In 1940 Mrs. Dow was awarded the Commander of the Order of Agricultural Merit of the Province of Quebec for "Outstanding service and leadership to patriotic and war causes." In 1943 the QWI presented her with a Life Membership in FWIC.

On the recommendation of the Department of Agriculture in Ottawa, Mrs. Dow in 1946 was made an Officer (Civil Division) of the Order of the British Empire. She received the Order of the Good Times from the Province of Nova Scotia in 1941 and Certificate of Women's Voluntary Services of Great Britain and Northern Ireland for "generous help during the long years of battle against Nazi tyranny" after the war.

In Jerusalem, in 1944, 18 trees were planted in a reforestation program by the Hadassah Organization of Canada, Montreal, in Mrs. Dow's name for her active interest in the rebuilding of the Jewish homeland in Palestine.

Besides the above honours Mrs. Dow received a medal commemorating the coronation of Queen Elizabeth in 1953 and has a life membership in the New Carlisle Home and School Association.

Mrs. Dow has served the Women's Institute as branch and county President. She was a Provincial President and in 1943-47 was National President of the FWIC. She lives alone now but is in close touch with her family and WI interests. We wish her well in the future.

The Changes in Education

Education, our nation's most important business, has undergone many changes through the years and without doubt the future holds many more.

At the turn of the century schools were built and maintained by the people in the rural localities. During the thirties, the word "consolidation" became the equivalent of the now familiar "polyvalent" and schools started being moved farther from home. Eventually, these schools became regionalized. When your grandparents went to school, it was to the "little red schoolhouse" that was just a hop, skip, and jump from their homes. Incidentally, cafeterias weren't needed as the youngsters ran home for lunch and exercised without knowing it, thus eliminating the need for expensive gyms. Now, youngsters are bused while listening to the latest hit tunes.

When the schools were consolidated, the children were taken to school usually by a horse-drawn vehicle that was bitterly cold in

winter and equally hot in summer. Now, youngsters often travel more than 20,000 miles per year to the windowless, air-conditioned regional schools. Full course meals prepared in sparkling, stainless steel cafeterias are available at reasonable prices. No longer do children run home across the fields for lunch nor do they warm up with hot soup prepared on a wood-burning stove in the consolidated school lunchroom or spare room.

Today, we have all sorts of courses: readiness programs in kindergarten and Grade 1, special education, accelerated classes, commercial classes, industrial arts, plastic arts, sex education classes, new math, and total immersion for learning a second language.

With all these changes, in the name of progress, one wonders why so many students, on reaching University, cannot read and are obliged to have remedial reading instruction.

Mrs. J.L. Henderson,
Q.W.I. Education Convener.

"Outline"

Do you remember when you first became a member of the Quebec Women's Institute? All the things you wanted to know about your own particular branch and WI in general? The questions your friends and neighbours asked you and you were unable to answer?

It is not too difficult to find out how and why the Women's Institute was started, but many of us, unless we have held office, find it hard to understand why we have to raise money other than our annual fees and what this money is used for. Then each branch has its own way of making up its yearly program. This sometimes leaves new members rather puzzled as to what is expected of them.

It was this situation that prompted me to put together an "outline" of how our own branch, **Frontier (Argenteuil Co.),** operates.

I started by explaining how our Hostesses were selected and what was expected of them. How the refreshments are "Pot Luck" as everyone brings just enough for herself and a guest — if she brings one — and it is all served together. The Hostess just furnishes cream, sugar, coffee or tea, serviettes, and a place for the meeting. It can be held in her own home if she prefers or one or more members can be joint hostesses and rent a local hall.

The "Outline" explains how our program is compiled and that suggestions from all members are invited to aid the executive in this work. It tells why Conveners should keep notes at each meeting to aid in making their annual reports and to pass on to their successors.

What we do about program books, information about motto pins, 25-and 50-year pins. How our annual fees keeps us a member but does not cover our yearly expenditures. All this is explained.

This is where I started to do research into WI in general. I believe I learned more during this time than I would have in a lifetime of passive membership. I gave a partial list of the yearly expenditures, i.e., the amount paid to each: Service Fund, Provincial Fees, County Fees, ACWW and FWIC travelling fund, pooling of fares, Quebec Extension Fund, and Pennies for Friendship and our own County Fair money and Education Fund and what the money was used for in each case.

In June 1975 Mrs. Donald Chisholm, left, and Mrs. R. Bruce Ness of the Howick WI received their Life Membership Certificates and Pins. Mrs. Chisholm joined the Howick WI in the early 1940s. She has been Convener of Agriculture, Vice President, and President. She served an extra term as President at a time when new and younger members were needed. It was felt that her personality and interesting programs had prompted many younger women and new older members to join the Howick WI.

Mrs. Ness joined in 1937 and has acted as Convener of Education, Secretary, Treasurer, Vice President, and President. Both these ladies have attended County Conventions and at times the Provincial Convention.

It is clearly stated that this "Outline" in **NO WAY** takes the place of the WI handbook or "do's" and don'ts" of Quebec Women's Institutes but was compiled in the hope of giving new members a better understanding of how our branch operates and where the money we raise is used.

It was meant to be given to new members or to anyone interested in joining WI but was so popular that all our members were given one as well as some sister branches who asked for a copy.

Mrs. Melvin Dewar
Frontier WI

Rainbow Squares (Recipe from **Matapedia)**

1 cup butter or margarine
3 tablespoons white sugar
2 cups flour
Pinch of salt (if butter or margarine is salted, no more is necessary)

Mix and pack into fair-sized pan and bake in oven (350°) till brown. Cool.

Filling
1¼ cups crushed pineapple
Small bottle of red cherries cut up — also juice
½ cup white sugar
3 tablespoons cornstarch
Vanilla (to taste)

Mix together and cook in a double boiler until thick. Cool. Spread on to the above mixture.

Topping
2 or 3 egg whites
½ cup white sugar
Coconut

Beat egg whites till fluffy, gradually adding sugar. Spread over the filling and sprinkle with fine coconut. Brown in a moderate oven. Cool and cut into squares.

Dear WI Members:

Children are back in school as I write this and reports show we are all concerned with education — education of other children as well as our own.

Cowansville heard Mrs. Rogers, Secretary of the Student Loan Fund, speak on the purposes of the fund and how it works. This is a loan service that is interest free for two years after the student has finished the course and is repaid within 10 years. The branch contributes to the fund. **Compton County** branches support a County Bursary fund.

Adult education courses are available in the high schools at night and vary from language courses to bookkeeping, typing, keep fit programs, arts and craft courses of all kinds. Many of our members take advantage of these courses and some teach them.

"Should children work to earn their own way through school?" was a question asked in the **Cleveland** WI. A spirited discussion took place — the majority felt children should work in the summer but not when in school.
Members of one branch repaired the stage curtains in their school and **Fordyce** made new drapes for the grade 5 team area in their Memorial School. Their members had an interesting evening recently when they saw a film on the making of Tupperware products. The branch also attended a play in Lennoxville and enjoyed a picnic at Brome Lake.

Some WI's have been visiting and entertaining other branches. A trip through the Thousand Islands was enjoyed by one group — another visited the Ottawa Exhibition and later members and friends visited the CFCF studio for the taping of the TV program, "Excuse My French".

School Fairs are still held in many parts of the province. Some Institutes judge the gardens, others sponsor a Fair at the end of the summer and judge the flowers and vegetables there. Others do both. Most Fair programs include baking, sewing, collections, art, etc. Some groups donate money for prizes at the junior section of the local County Fairs or give ribbons as prizes.

Each year seeds are becoming more expensive and this past year has seen an increase of almost double the cost of '74. In spite of this it is hoped that this program can continue. It is very interesting and rewarding to see the beautiful work and effort that is put into the exhibits — rewarding for the children and for the WI's that sponsor the Fairs.

Besides children's fairs, flower contests were held among the members. They included a marigold, tuberous begonia, and a flower of the month contest. A flower arrangement, for judging, was an interesting Roll Call for one WI. **East Clifton** saw a demonstration of the art of preserving and drying leaves and flowers with the members participating in

creating greeting cards from pressed samples brought in. They answered the Roll Call with six samples of tree leaves.

An agriculture meeting in **Gore** was devoted to "weeds found in our lawns and barnyards" — 29 familiar weeds were displayed.

The first fall meeting of **Pioneer** branch was highlighted by the presentation of a FWIC pin to their immediate Past President, Mrs. Clifton Matthews. In presenting the pin, the President, Mrs. Parsons, said that the branch wished to show Mrs. Matthews their appreciation "for her unflagging work and effort during her term of office."

Mrs. Bertha Enlow of **Brownsburg** was congratulated on prizes won for her handicraft work at the Toronto Exhibition. This group is busy with plans for their handicraft tea and arranging a drive for the Senior Citizens. Mrs. Hazel Ogilvy, of **Jerusalem-Bethany,** also received congratulations on winning the Myrtle Stewart tray for most points in handicrafts at the Fair. The grandmothers in this WI entertained the group at a meeting with a variety program.

Older members, some Charter, celebrating birthdays have been remembered with cards and visits. Jams, jellies, and pickles have been sent to Senior Citizens' homes.

4-H Clubs received support and donations in many parts of the province. This is a very worthwhile group to help. Anyone visiting our local fairs can testify to the high standard of care given to the 4-H animals and the interest these young people have in their animals.

Talks on holidays abroad are always interesting and informative. Miss Hannah Smith gave a talk to **Lakefield** members recently on the ACWW Conference in Australia in 1974.

Many articles were read and discussions held on a variety of subjects: Dutch Elm disease with possible solutions; history of WI — what it does locally, nationally, and internationally; best use of your freezer; concern of farmers over surplus milk; probable closing of local abattoirs; stolen beef, butchered and discarded in the farmers' field (this is a big loss to farmers and they are very concerned); responsibility of the members of the Supreme Court, etc.

At a **Cleveland** WI meeting members were asked to list their talents and achievements. Besides the usual ones associated with country women who grow and preserve their own vegetables and cook and look after families, these included teaching, art, music, carpentry, masonry, handicrafts of all kinds, and interior decorating.

Bazaars are a favourite method of raising funds and several are planned. **Richmond** has a County tea and bazaar coming up. Each branch is making posters to advertise the event. The **West Island** ladies have postponed theirs till the spring to give members more time to make articles. They are looking forward to a fashion show at the Lachine General Hospital put on by the hospital auxiliary.

Garden produce sold for Pennies for Friendship, quilts for quilting and tying prepared, white elephant sales, 1,230 cancer dressings made by members of **Gore** WI are some of the other activities reported.

Mrs. James Robertson
QWI Publicity

(Continued from page 11.)

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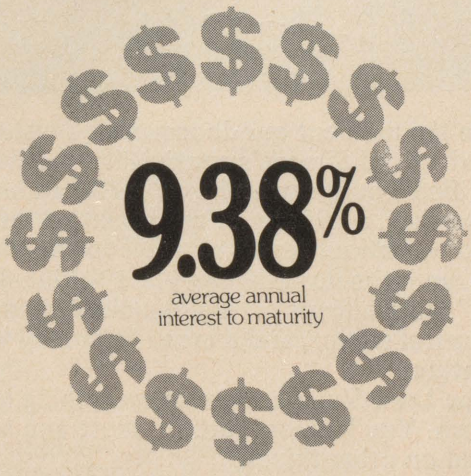

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